PIFSC Stock Assessment Program

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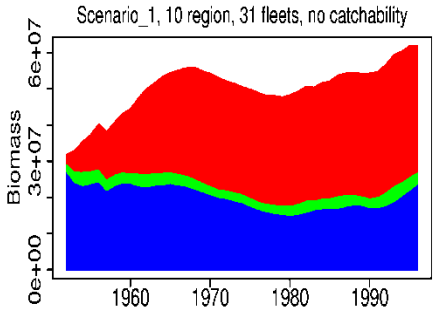
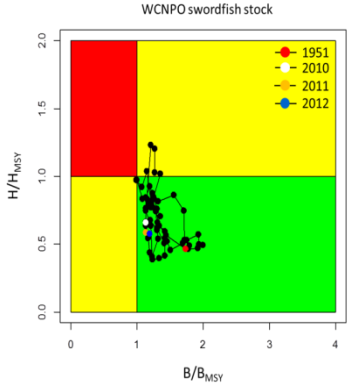
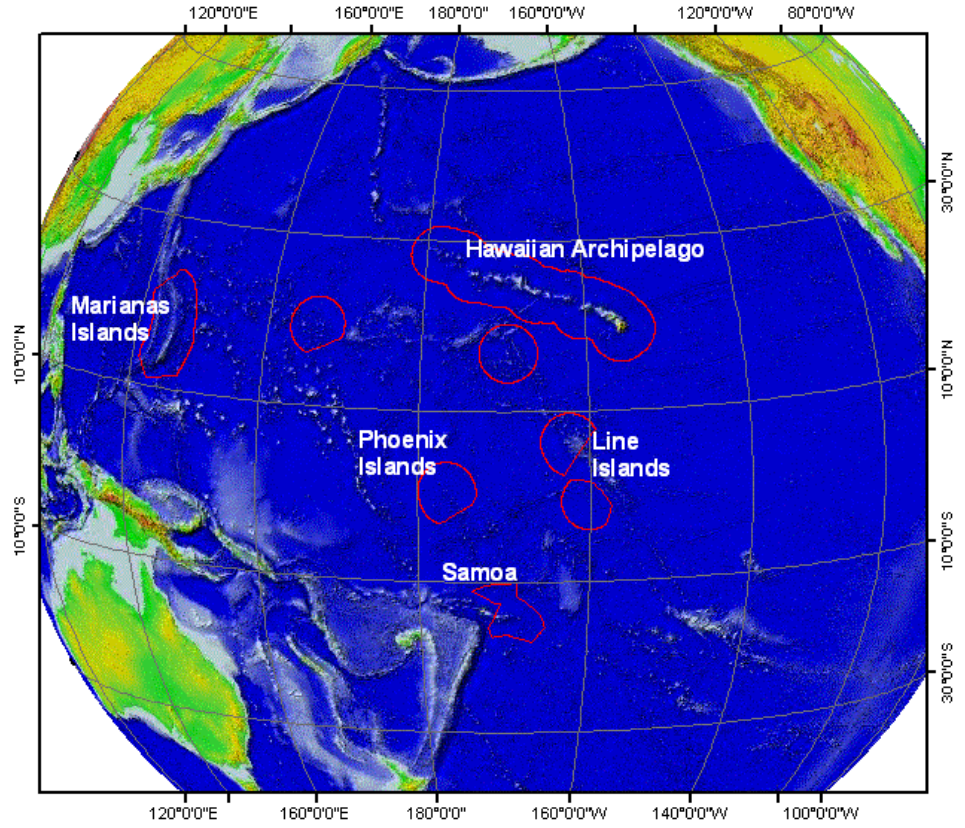
Presentation Topics

- Mission & Staffing
- The Landscape
- PIFSC Stock Assessment Program
- Stock Assessments
  - Process and Complexity
- Data Collection Programs
- Bottlenecks





The Landscape:
Geographic Area of Responsibility



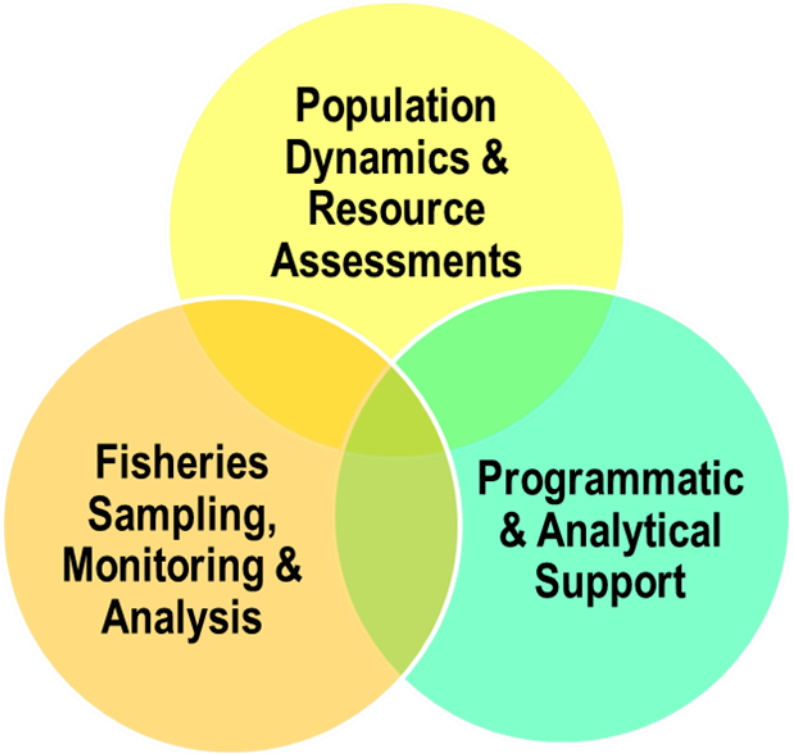
Characteristics

- Vast Area
- Multiple Jurisdictions
- Tropical, Sub-tropical and Temperate Ecosystems
- Pelagic and Insular Fisheries

PIFSC Stock Assessment Program Goals

- Provide scientific advice to resource managers on the current status and future trends in abundance and productivity of exploited marine resources in the Central and Western Pacific Ocean.
- Provide the technical basis for setting annual catch limits and other fishery management measures that achieve optimum yield from the fishery while avoiding overfishing and ecosystem harm.
- Provide scientific and quantitative support to RFMOs and RFOs
- Overarching Mandate -- Magnuson-Stevens Act (MSFCMA)

SAP Activities

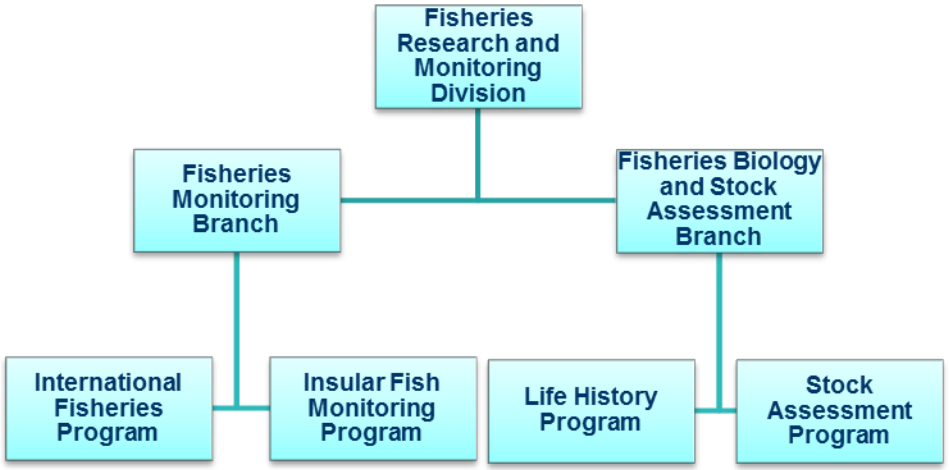


PIFSC Stock Assessment Program Responsibilities

To Support Goals, the PIFSC Stock Assessment Program:

- **Conducts Resource Evaluations and Assessments**
- **Develops Improved Quantitative Techniques (Model Development)**
- **Develops Science and Decision Support Tools (control rules) to Support Implementation of Ecosystem Approaches to Fisheries Management in PIR**
- **Quantifies Fishery Interactions (Bycatch Estimation)**
- **Provides Scientific and Quantitative Expertise to PIFSC, PIRO, WPRFMC, State of HI, WCPFC, ISC, IATTC, and other emerging RFMOs (NPFC & SPRFMO)**

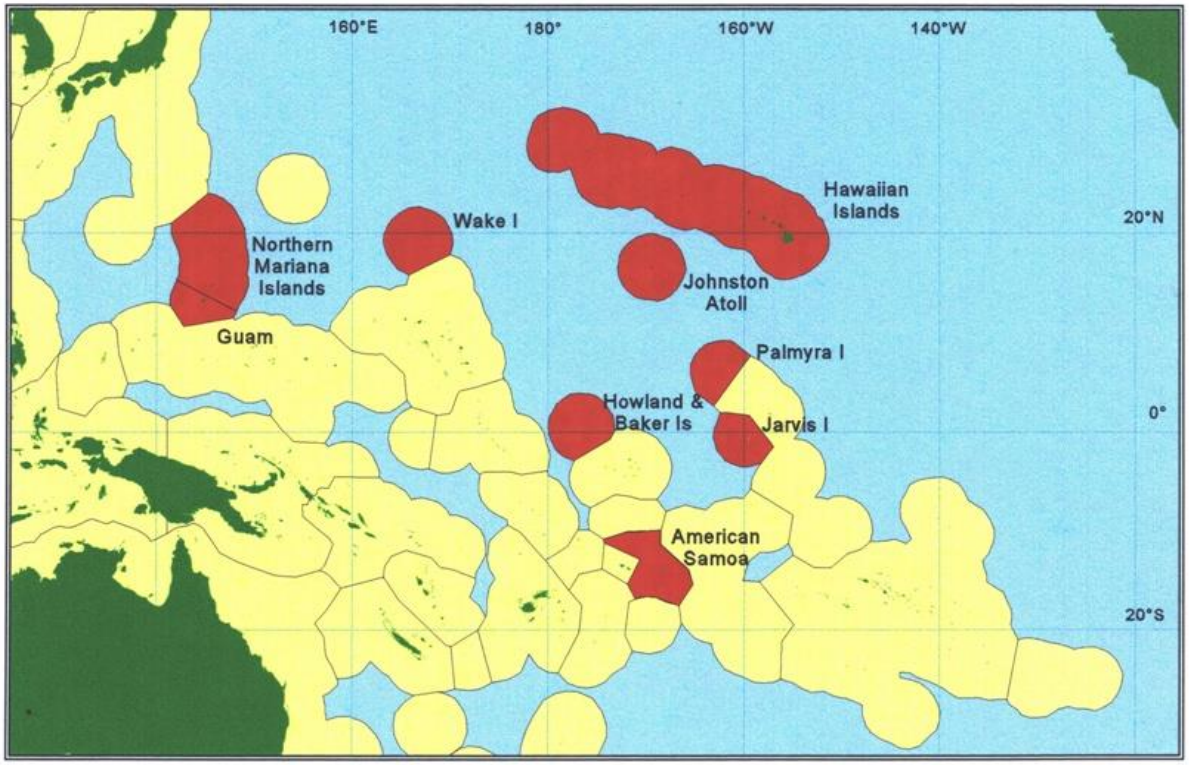
Organizational Structure



Stock Assessment Program Staff

G. DiNardo, Supv Res Fish Biol
J. Brodziak, Math Stat
B. Langseth, Math Stat
M. McCracken, Math Stat
B. Richards, Res Fish Biologist
A. Yau, Res Fish Biologist
Y. Chang, Fisheries Scientist (J)
E. Fletcher, Comp & DB Assist (J)
F. Carvalho, Fisheries Scientist (J)
H. Lee, Fisheries Scientist (J)
M. Nadon, Fish Assess Spec (J)
W. Walsh, PIFSC Researcher (J)

Scientific and Management Mosaic Insular Fisheries



Exclusive economic zones (EEZs) of the Pacific Islands.
Western Pacific Regional Fishery Management Council EEZ area shown in red.

Constituents/Partners

- WPRFMC
- State of HI
- Territories
- Other US Gov't Entities (NOS)
- Universities

Species of Interest – Insular Fisheries (Data Poor – Poorer)

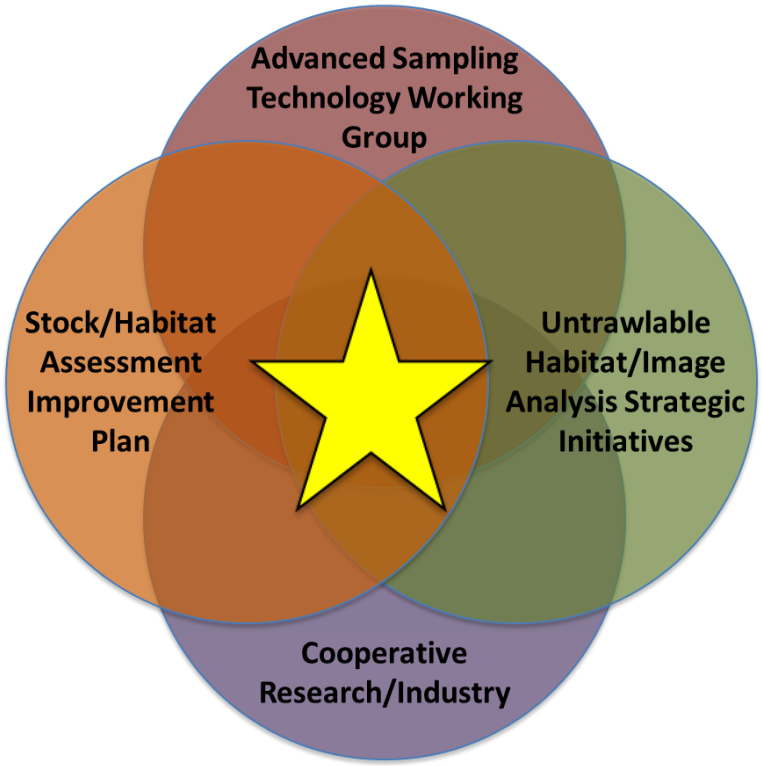
- **Bottomfish (Data Poor Stocks)**
  - Snappers, groupers, jacks (BMUS = 14)
    - Deep 7 focus
  - Seamount groundfish (GMUS = 3)
- **Coral Reef Fish (Data Poorer Stocks)**
  - > 200 species

- Crustaceans (Data Poor Stocks)
  - spiny and slipper lobster; crabs; shrimp (CMUS = 10)
- Precious Corals (Data Poor)

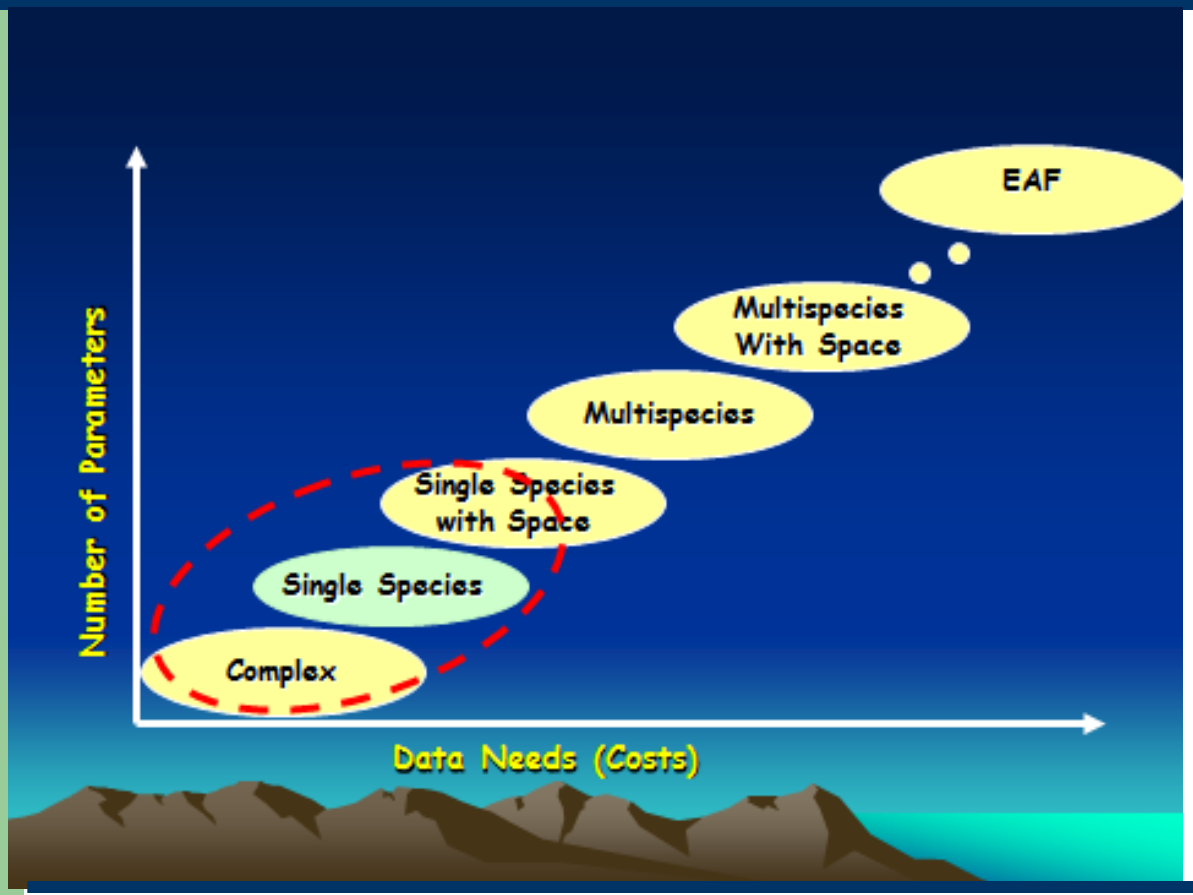
Stock Assessment Data Sources – Insular Fisheries

Data Source	Catch	Effort	Size (len/wt)	Life Hist. Parm.	Abund / Density	$$
Comm. Fisherman Rpts. (HI)	X	X			X	
Creel Survey (Territories – WPacFIN)	X	X			X	
HMRFS (HI - Recreational)	X	X				
Comm. Fishery Biosampling	X		X	X		
Dealer			X			X

Support for Insular Stock Assessment Research



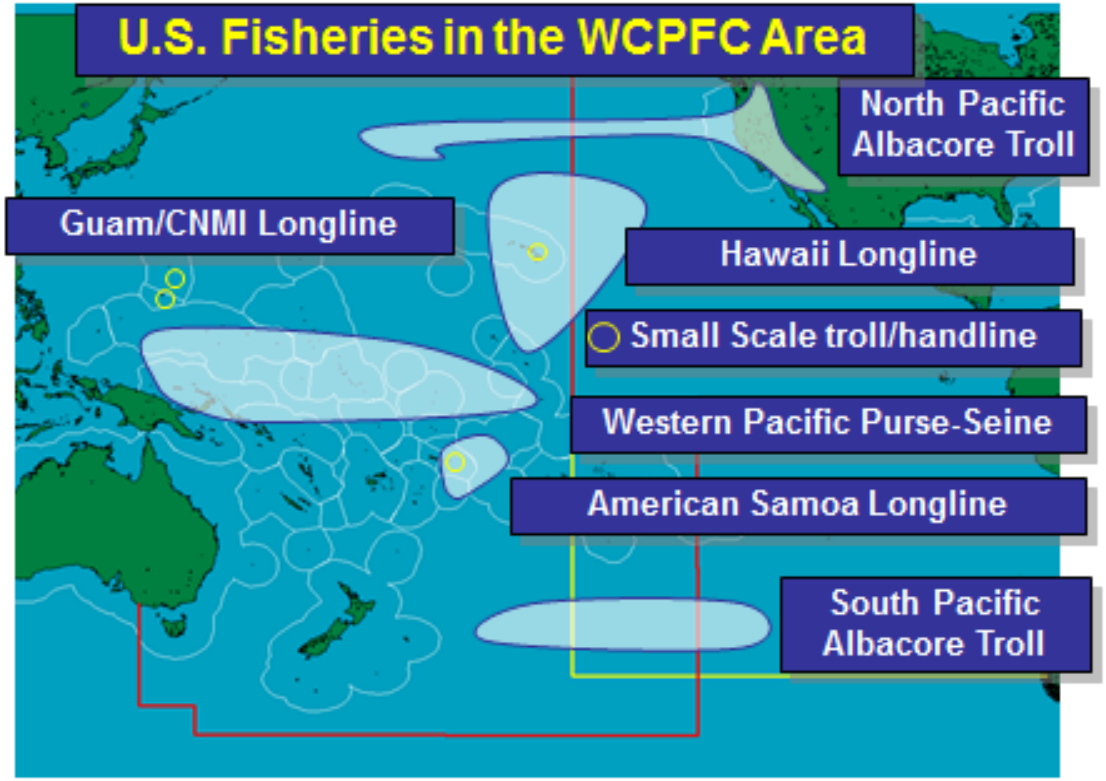
Model Complexity
Insular Bottomfish Fisheries



NMFS Assessment Tiers

0 = none
1 = index only (commercial or research CPUE)
2 = simple life history equilibrium models
3 = aggregated production models
4 = size/age/stage-structured models
5 = add ecosystem (multispecies, environment), Spatial & seasonal analyses

Scientific and Management Mosaic Pelagic Fisheries

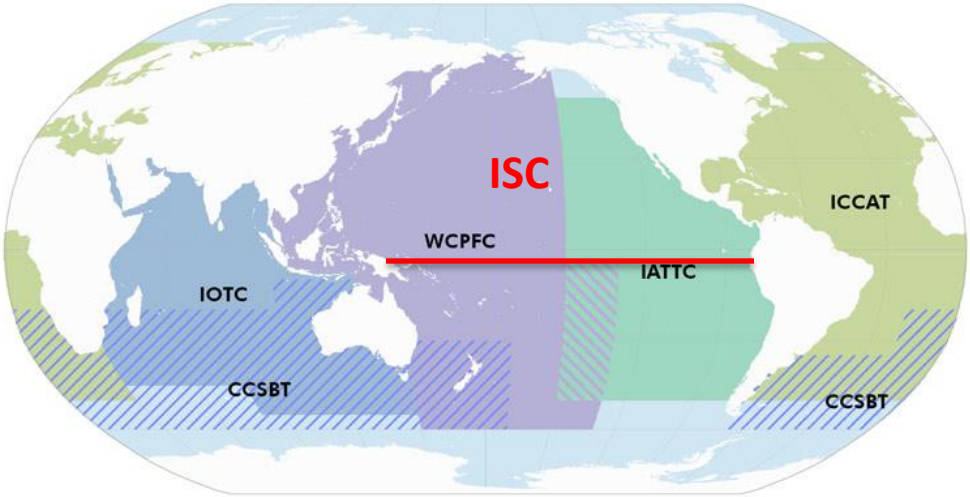


Fish Species (N=33)

- Tunas
- Billfish
- Sharks
- Other pelagics

(Major PMUS =18)

Scientific and Management Mosaic Pelagic Fisheries



Constituents/Partners

- RFMOs
  - WCPFC
  - IATTC
  - NPFC
  - SPRFMO
- RFOs
  - ISC
  - PICES
- WPRFMC
- Universities
- Foreign Gov't Scientists

Pelagic Fisheries Assessment Framework

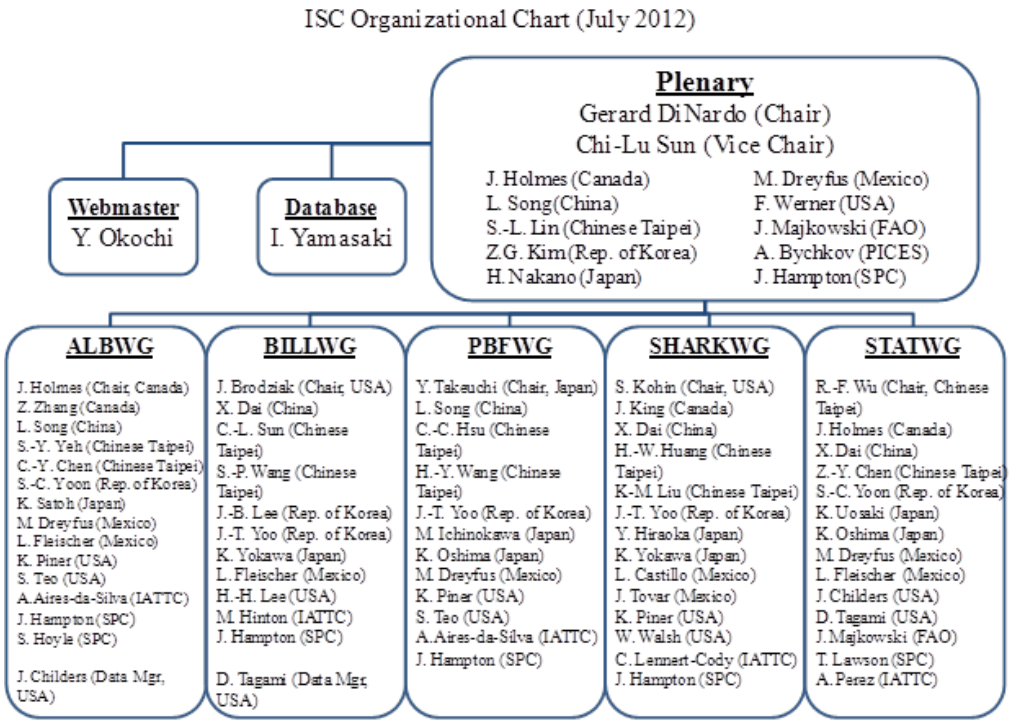
U.S. Participates in the Assessment Process

- Data Exchanges
- Assessments (area specific) – collaborative
  - Management area specific
    - WCPO – WCPFC (tunas, billfish, sharks)
    - EPO – IATTC (tunas, billfish, sharks)
  - Stock specific
    - "North" Pacific – ISC (tunas, billfish, sharks)

RFMO Assessment Process (WCPFC and IATTC)

- Commission Identifies List of Species
- Science Providers Conduct Assessments
  - WCPFC – SPC
  - IATTC – Staff
- Assessment Reviews
  - WCPFC – SC Meeting (August)
  - IATTC – SAC Meeting (May)

RFO Assessment Process - ISC



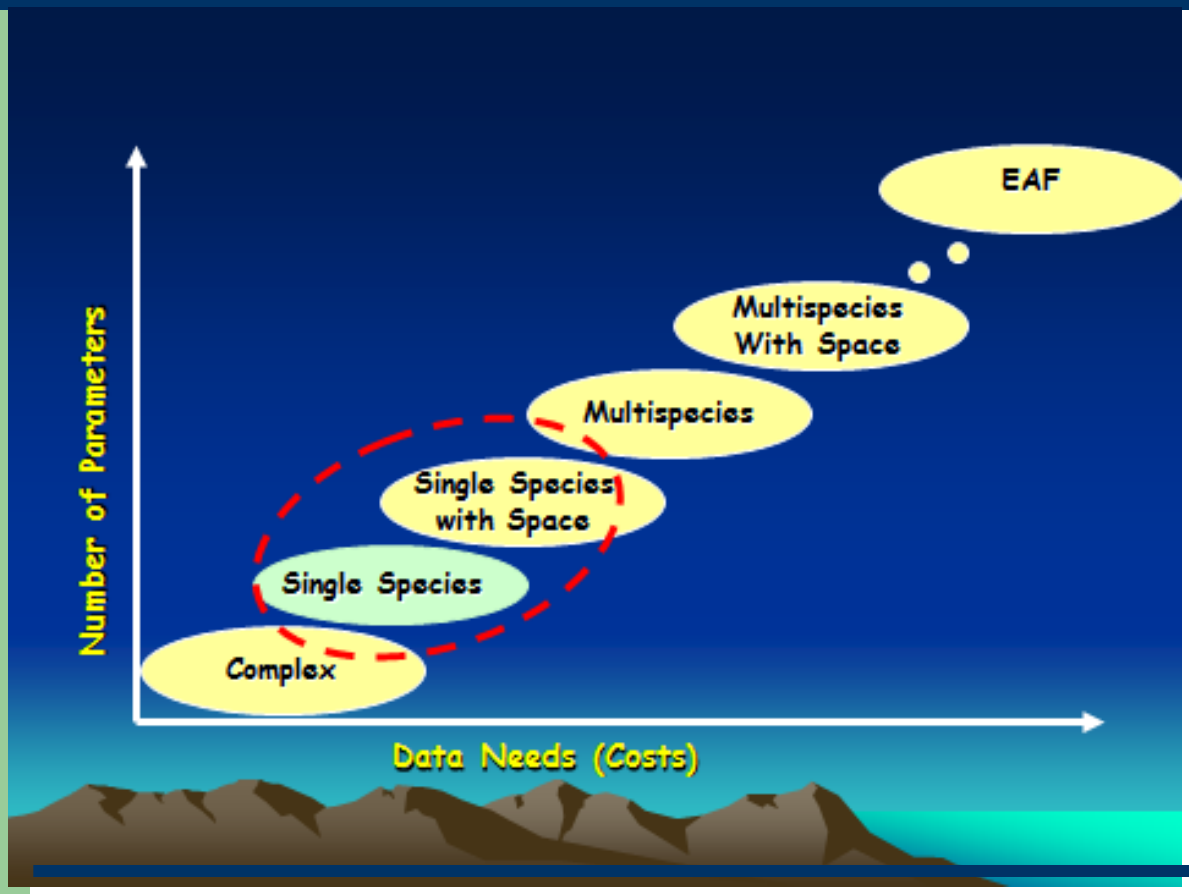
- ISC Species Working Groups (WG) Develop Assessment Schedule
- ISC Plenary Reviews / Modifies Assessment Schedule
- WCPFC–SC informed of ISC Assessment Schedule
- WCPFC-NC Reviews / Modifies ISC Assessment Schedule
- ISC WGs Conduct Data Prep and Assessments Workshops
- Assessment Reviewed by ISC Plenary, Assessment Report to WCPFC-SC, External Review of Assessment

Stock Assessment Data Sources U.S. Pelagic Fisheries

Data Source	Catch	Effort	Size (len/wt)	Life Hist. Parm.	Abund / Density	$$
Logbook	X	X			X	
Observer			X	X		
Dealer	X		X			X
Port Sampling (Purse Seine - Am. Samoa)	X		X			
Cannery (Purse Seine – Am. Samoa)	X					X

- "Similar" data from international partners

Model Complexity Pelagic Fisheries



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Accomplishments and Future Plans

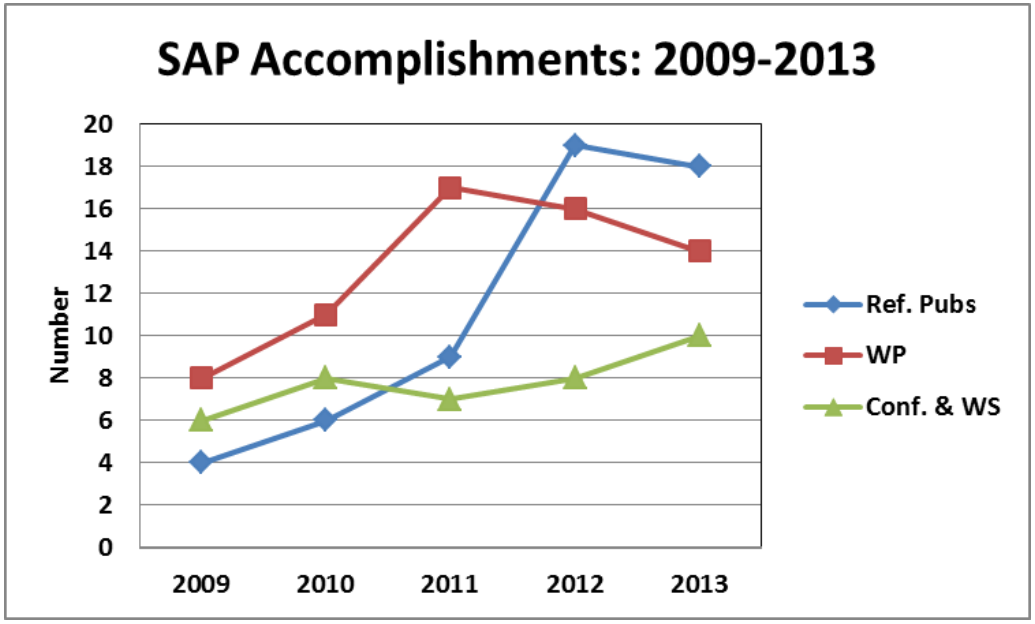
Domestic

- MHI Bottomfish (2011-U, 2014-U)
- Coral Reef Fish (2014-2015-B)
- Territorial Bottomfish (2012-U, 2015-B)

Pelagic

- NP Swordfish (2009-B, 2010-U, 2014-U)
- NP Albacore (2011-B, 2014-B)
- NP Striped Marlin (2007-B, 2012-B, 2015-B)
- NP Bluefin Tuna (2010-U, 2012-B, 2014-U)
- NP Blue Shark (2013-B, 2014-B)
- Pacific Blue Marlin (2013-B)
- Wahoo (2016-B)

Accomplishments and Future Plans



Despite increasing workloads and similar number of staff!

Challenges

- **Data (addressed at 2013 External Review)**
  - Life History Data
  - Catch/Effort
  - Environmental Data (Habitat and Oceanography)
  - Abundance (reliance of F-D data)
- **Insufficient International Support (Research and Participation)**
  - Existing & emerging international agreements
- **Staffing**
  - Assessment scientists
  - Support staff
- **Agencies Expanding Scientific Footprint**
  - Increased costs
  - Blurring of responsibilities